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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,391	01/07/2002	Stefan Schabel	Q67746	4486
7590 03/21/2006			EXAMINER	
SUGHRUE MION, PLLC 2100 Pennsylvania Avenue, NW Washington, DC 20037-3213			DSOUZA, JOSEPH FRANCIS A	
			ART UNIT	PAPER NUMBER
			2611	

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

A

Office Action Summary	Application No.	Applicant(s)	
	10/036,391	SCHABEL ET AL.	
	Examiner	Art Unit	
	Adolf DSouza	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/8/2002</u> . | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

1. Applicant's arguments, "Haykin fails to teach a 0.2 to 0.4% can be achieved by adjusting the bandpass filter for a given bandpass range", filed 12/15/2005, with respect to the rejection(s) of claim 1 under 35 U.S.C 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Hansryd (A Simple, Low Timing Jitter, Sub-Multiple Clock Recovery Scheme, Sept. 20-24, 1998, European Conference on Optical Communication, pages 471-472) in view of Paine et al. (US 3,626,298) and further in view of Andrews et al. (US 4715049).

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

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The following change is suggested in the title: Process for Digital Message
Transmission in a Packet Mode and a Receiver for Reception of Optical Data Packets.

A "receiver for transmission".. is changed to "receiver for reception..."

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 1-2 and 6, the specification simply states that a bandwidth of 0.2 - 0.4 percent or 0.3 percent of the bit timing is used. No adequate explanation is given of how one arrives at these numbers. For example, why is 0.2 used and not 0.18 or 0.22? The significance of what these numbers mean should be explained in relation to how they relate to the transient recovery and decay times of the bandpass filter.

Claims 3-5 are rejected since they are dependent on a rejected claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Prior to rejection of claims, the examiner would like to bring to the applicant's attention that there is no specific description of the function of the discriminator in the specification. Therefore, in the absence of such a description, the examiner has interpreted the discriminator in the broadest possible terms and claims are analyzed in light of that broad interpretation.

7. Claims 1-2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hansryd (A Simple, Low Timing Jitter, Sub-Multiple Clock Recovery Scheme, Sept. 20-24, 1998, European Conference on Optical Communication, pages 471-472) in view of Paine et al. (US 3,626,298) and further in view of Andrews et al. (US 4,715,049).

Regarding claim 1, Hansryd discloses process for digital message transmission in a packet mode (page 471, section "Introduction", 1st 4 lines; wherein the packet mode is interpreted as the time division multiplexing scheme), where transmitted signals are

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sampled at an end of a transmission link by means of a device for timing recovery (Fig. 2, page 471, section "Experimental Details") and are then further processed; and where the signals are fed to a discriminator simultaneously via two separate paths (Fig. 2, element "Demux"; wherein the discriminator is interpreted as the demux), a delay path (Fig. 2, fiber delay line path labeled 40 Gbits/sec; page 471, section "Experimental Details") and a path fitted with a filter (Fig. 2, element "High-Q filter"; section "Experimental Details"); and an amplifier limiting an amplitude of an output voltage of the limiting amplifier via which the signals are brought to a required constant level, is connected downstream of the bandpass filter (Fig. 2, element "Limiting amplifier"; page 471, 2nd column, last line - page 472, 1st 3 lines).

Hansryd does not disclose that the relationship between the bandwidth of the bandpass filter and the bit rate.

In the same field of endeavor, however, Paine discloses a wideband bandpass filter with a relative bandwidth of 0.2% to 0.4% of a bit timing of the transmitted signals is used as the filter (column 1, lines 70-75; column 7, lines 60-67; wherein the range of 0.2% to 0.4% is interpreted as being included in the range of "down to" 0.001 percent of the bit rate).

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Therefore it would be obvious to one of ordinary skill in the art, at the time the invention was made, to use the method of having the bandwidth of the filter dependent on the bit rate, as taught by Paine, in the system of Hansryd because this would allow the bandwidth to be optimized for the input bit rate, thereby reducing the noise power that is allowed through.

Hansryd does not disclose the relationship between the transient recovery time, the delay time and the decay times.

In the same field of endeavor, however, Andrews discloses transient recovery time is less than a time by which the signals are delayed on the delay path, and the time by which signals are delayed on the delay path is less than a decay time of the wideband bandpass filter (Fig. 1, element 26; column 3, line 62 – column 4, line 33; wherein the time by which the signals are delayed on the delay path in relation to the transient and decay times is interpreted as being the delay set by delay element 26).

Therefore it would be obvious to one of ordinary skill in the art, at the time the invention was made, to use the method, as taught by Andrews, in the system of Hansryd because this would allow the delay to be adjusted so that the signals in both paths are synchronized.

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Claim 2 is similarly analyzed as the limitation in claim 1, that the bandwidth be 0.2% – 0.4% of the bit rate.

As to claims 13-22, claims 13-22 are apparatus claims corresponding to method claims 1-10 and recite substantially very similar limitations and therefore are similarly analyzed as method claims 1-10 above.

Regarding claim 6, Hansryd discloses an optical telecommunication system for the transmission of optical data packets (page 471, left column, 1st 3 lines; wherein the packet mode is interpreted as the time division multiplexing scheme).

All other limitations of claim 6 are apparatus limitations corresponding to method limitations in claim 1 and recite substantially very similar limitations and therefore are similarly analyzed as method claim 1 above.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hansryd (A Simple, Low Timing Jitter, Sub-Multiple Clock Recovery Scheme, Sept. 20-24, 1998, European Conference on Optical Communication, pages 471-472) in view of Paine et al. (US 3,626,298) and further in view of Andrews et al. (US 4,715,049) and Haykin (Communication Systems, 1978, John Wiley & Sons, pages 89-93).

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Regarding claim 3, Hansryd does not disclose that the bandpass filter can be implemented by in-phase and quadrature paths comprising low pass filters.

In the same field of endeavor, however, Haykin discloses a circuit with two parallel paths in which each is an identical low-pass filter arranged between two analogue multipliers, is used as the bandpass filter (Figs. 1.48 (a) and (b); page 89, section 1.15; wherein the output of (a) is fed to the input of (b) to give the desired configuration); and a local timing is applied to the multipliers of one of the two parallel paths, while the local timing shifted by 90.degree. is applied to the multipliers of the other one of the two parallel paths (Figs. 1.48 (a) and (b); page 89, section 1.15; wherein the local timing is interpreted as the "cos" signal and the local timing phase shifted by 90-degrees is interpreted as the "sin" signal).

Therefore it would be obvious to one of ordinary skill in the art, at the time the invention was made, to use the method, as taught by Haykin, in the system of Hansryd because this would allow the bandpass filter to be implemented by in-phase and quadrature paths that use low pass filters, thereby simplifying and cost reducing the implementation.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hansryd (A Simple, Low Timing Jitter, Sub-Multiple Clock Recovery Scheme, Sept. 20-24, 1998, European Conference on Optical Communication, pages 471-472) in view of Paine et

al. (US 3,626,298) and further in view of Andrews et al. (US 4715049), Haykin (Communication Systems, 1978, John Wiley & Sons, pages 89-93) and Malik et al. (US 5,577,056).

Regarding claim 4, Hansryd does not disclose that a sample-and-hold element is placed before the low-pass filters.

In the same field of endeavor, however, Malik discloses a system that utilizes a sample-and-hold circuit in the two parallel paths of a timing recovery scheme (Fig. 2, elements 44 and 45; column 4, lines 57-59; wherein the sample-and-hold elements are interpreted as the A/D converters).

Therefore it would be obvious to one of ordinary skill in the art, at the time the invention was made, to use the method, as taught by Malik, in the system of Hansryd because this would allow digital processing of the elements of the bandpass filter, thereby improving system reliability, since the filter parameters wouldn't be subject to temperature and time fluctuations and also the two paths could be more precisely matched.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hansryd (A Simple, Low Timing Jitter, Sub-Multiple Clock Recovery Scheme, Sept. 20-24, 1998, European Conference on Optical Communication, pages 471-472) in view of Paine et

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al. (US 3,626,298) and further in view of Andrews et al. (US 4,715,049) and Pachynski (US 4,025,720).

Regarding claim 5, Hansryd does not disclose converting NRZ code to RZ code.

In the same field of endeavor, however, Pachynski discloses coding of the signals prior to the bandpass filter is converted from an NRZ code to an RZ code (column 5, lines 27-34; column 7, lines 52-65).

Therefore it would be obvious to one of ordinary skill in the art, at the time the invention was made, to use the method, as taught by Pachynski, in the system of Hansryd because this would produce a spectral component for clock recovery.

Other Prior Art Cited

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents cited to further show the state of the art with respect to clock recovery in general:

Bench et al. (US 4,276,651) discloses clock circuitry for a data communication system.

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Cortese (US 5,138,633) discloses method and apparatus for adaptively retiming and regenerating digital pulse signals.

Meline (US 5,047,735) discloses RZ clock recovery circuit with positive feedback.

Pearson (US 5,276,712) discloses method and apparatus for clock recovery in digital communication systems.

Thomas et al. (US 4,996,444) discloses a clock recovery circuit.

Viola et al (US 4,737,970) discloses a clock recovery circuit using a cavity resonator.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adolf DSouza whose telephone number is (571)-272-1043. The examiner can normally be reached on Monday – Friday (730 – 430 EST).

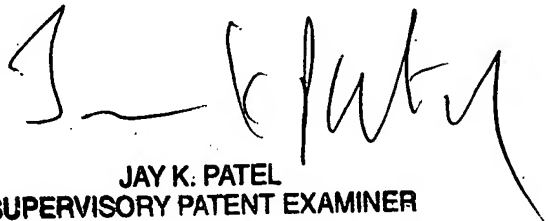
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour, can be reached on (571)-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


AD

Adolf DSouza
Examiner
Art Unit 2637


JAY K. PATEL
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